which, is assumed,, as far as I can judge, to a greater degree in dilute sulphuric acid than in pure water. The power, therefore, of acids, alkalies, salts, and other bodies in solution, to increase conducting power, appears to hold good only in those cases where the electrolyte subject to the current suffers decomposition, and loses all influence when the current transmitted has too low an intensity to affect chemical change. It is probable that the ordinary conducting power of an electrolyte in the solid state (155) is the same as that which it possesses in the fluid state for currents the tension of which is beneath the due electrolytic intensity.

720. Currents of electricity, produced by less than eight or ten series of voltaic elements, can be reduced to that intensity at which water can conduct them without suffering decomposition, by causing them to pass through three or four vessels in which water shall be successively interposed between platina surfaces. The principles of interference upon which this effect depends will be described hereafter (745, 754), but the effect may be useful in obtaining currents of standard intensity, and is probably applicable to batteries of any number of pairs of plates.

721. As there appears every reason to expect that all electrolytes will be found subject to the law which requires an electric current of a certain intensity for their decomposition, but that they will differ from each other in the degree of intensity required, it will be desirable hereafter to arrange them in a table, in the order of their electrolytic intensities. Investigations on this point must, however, be very much extended, and include many more bodies than have been here mentioned before such a table can be constructed. It will be especially needful in such experiments to describe the nature of the electrodes used, or, if possible, to select such as, like platina or plumbago in certain cases, shall have no power of assisting the separation of the *ions* to be evolved (648).

722. Of the two modes in which bodies can transmit the electric forces, namely, that which is so characteristically ex-

hibited by the metals, and usually called conduction, and that in which it is accompanied by decomposition, the first^appears common to all bodies, although it occurs with almost infinite degrees of difference; the second is at present distinctive of the electrolytes. It is, however, just possible that it may hereafter be extended to the metals; for their power of conducting without decomposition may, perhaps justly, be ascribed to their